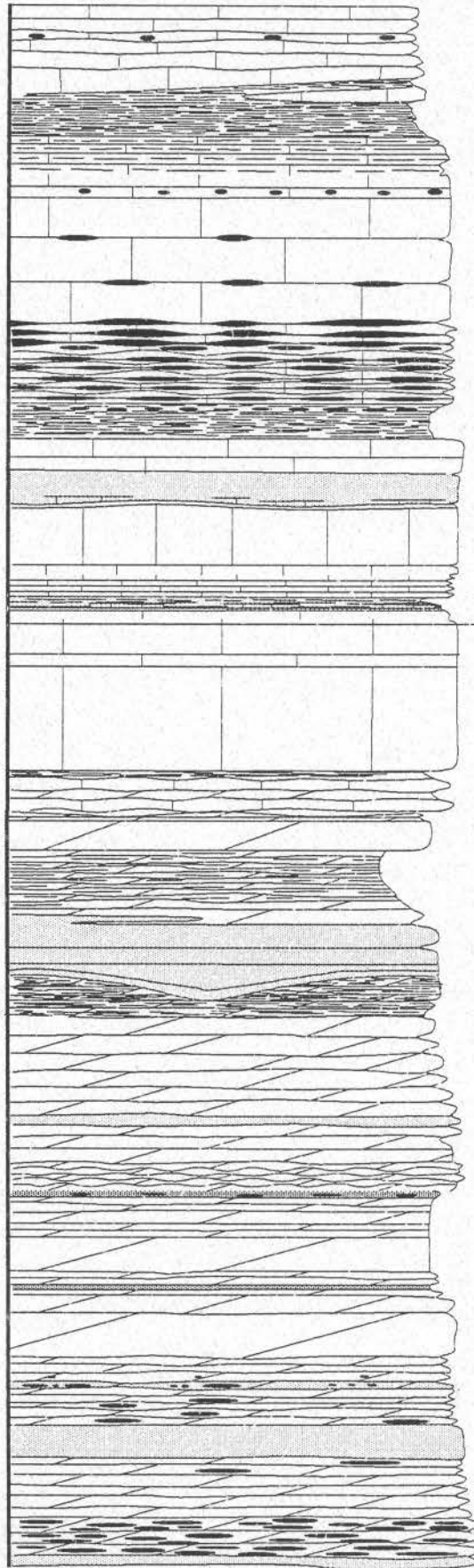


Stratigraphic Nomenclature

ADOPTED
FOR
USE
BY
THE
MISSOURI
DEPARTMENT
OF
NATURAL
RESOURCES
GEOLOGICAL
SURVEY

COMPILED BY
THE DIVISION
OF
GEOLOGY
AND
LAND
SURVEY
STRATIGRAPHIC
COMMITTEE



Stratigraphic Nomenclature

**Adopted for use by the
Missouri Department of Natural Resources
Geological Survey**

compiled by the
Division of Geology and Land Survey
Stratigraphic Committee



**MISSOURI DEPARTMENT OF NATURAL RESOURCES
Division of Geology and Land Survey**

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**STRATIGRAPHIC NOMENCLATURE
ADOPTED FOR USE BY THE
MISSOURI DEPARTMENT OF NATURAL RESOURCES
GEOLOGICAL SURVEY**

Compiled by the
Division of Geology and Land Survey Stratigraphic Committee*
July, 1993

Missouri Department of Natural Resources
Division of Geology and Land Survey
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In October, 1965, a Stratigraphic Names Committee was appointed by the State Geologist to recommend stratigraphic nomenclature and classification to be used by the Missouri Geological Survey. The first action of this committee was to recommend adoption of the Code of Stratigraphic Nomenclature of the American Commission on Stratigraphic Nomenclature (AAPG Bulletin, 1961, v. 45, n. 5, p. 645-655). Shortly after adoption of the Code, the committee, with the help of other Survey staff members, prepared a list of formal names of rock-stratigraphic units in Missouri to be used in Survey manuscripts and publications. This list serves as a standard for uniform nomenclature usage by Survey staff members and has been recommended for use by agencies and individuals who rely on the Survey to provide such information.

In 1984 the Geological Survey, Missouri Department of Natural Resources, adopted the *North American Stratigraphic Code* (AAPG Bulletin, 1983, v. 67, n. 5, p. 841-875), which allowed some changes in the original concepts of formal stratigraphic nomenclature. Generally, a single formal name is recommended for each rock-stratigraphic unit. The name selected for a specific unit is based on knowledge of subsurface and surface characteristics of that unit throughout the state. The formal name of a formation that consists predominantly, but not necessarily entirely, of a single lithology comprises a geographic name followed by that of the predominant lithology. An example is the **Burlington Limestone**, which, as the name implies, is predominantly limestone, although it usually contains varying amounts of chert and locally may contain a high percentage of dolomite. If a formation has no single predominant lithology, its formal name consists of a geographic name followed by the word "Formation." An example is **Roubidoux Formation**. The first letter of each element of a formal name is capitalized. If the unit is not formally recognized, but is used as a marker bed within a formation, the name is usually placed within quotation marks ("Swan Creek sandstone" of the Cotter Dolomite; "Quarry Ledge" of the Jefferson City Dolomite).

Rock-stratigraphic units of member rank are similarly named. If a member has a single predominant lithology the appropriate lithologic term is included between the geographic name and the word "Member." An example is the **Myrick Station Limestone Member of the Pawnee Formation**. Several units have been defined as a series of formations that constitute a **group**, with designations like the **Macy Limestone of the Platin Group**.

Although referred to as a group in detailed studies, the Platin can be called the **Platin Limestone** if a more regional, less detailed definition for the unit is desired, and the subdivisions are not used.

Facies and coal beds are usually not given formal recognition, although the newest code does allow coal beds to be recognized formally if desired, or required by the nature of the study. Examples of currently accepted informal usages are **Tebo coal**, and **Cooper limestone facies of the Cedar Valley Limestone**.

One of the functions of the Stratigraphic Committee is to recommend changes in stratigraphic nomenclature to the State Geologist. Proposals for such changes must be submitted to the committee by Survey geologists and are subject to final approval by the State Geologist.

**Tom Thompson, Chairman, Jim Palmer, Mark Middendorf, Dave Smith, Bruce Netzler, Don Miller, and Jim Martin.*

LIST OF FORMAL NAMES
(FOR USE WITHIN DGLS)
Compiled by the
DGLS STRATIGRAPHIC COMMITTEE
(July, 1993)

QUATERNARY SYSTEM

Holocene Series

Pleistocene Series

Bignell Loess
Brady Soil
Peoria Loess
Farmdale Loess
Sangamon Soil
Loveland Loess
Yarmouth Soil
Afton Soil

TERTIARY SYSTEM

Eocene Series

Wilcox Group

Holly Springs Formation
Ackerman Formation

Paleocene Series

Midway Group

Porters Creek Clay
Clayton Formation

CRETACEOUS SYSTEM

Gulfian Series

Owl Creek Formation
McNairy Formation

PERMIAN SYSTEM??

Indian Cave Sandstone

PENNSYLVANIAN SYSTEM

Virgilian Series

Wabaunsee Group

- Stotler Formation
 - Dry Shale Member
 - Dover Limestone Member
- Pillsbury Formation
- Zeandale Formation
 - Maple Hill Limestone Member
 - Warrego Shale Member
 - Tarkio Limestone Member
- Willard Formation
- Emporia Formation
 - Elmont Limestone Member
 - Harveyville Shale Member
 - Reading Limestone Member
- Auburn Formation
- Bern Formation
 - Wakarusa Limestone Member
 - Soldier Creek Shale Member
 - Burlingame Limestone Member
- Scranton Formation
 - Silver Lake Shale Member
 - Rulo Limestone Member
 - Cedar Vale Shale Member
 - Happy Hollow Limestone Member
 - White Cloud Shale Member
- Howard Formation
 - Utopia Limestone Member
 - Winzeler Shale Member
 - Church Limestone Member
 - Aarde Shale Member
 - Bachelor Creek Limestone Member
- Severy Formation

Shawnee Group

- Topeka Formation
 - Coal Creek Limestone Member
 - Holt Shale Member
 - Dubois Limestone Member
 - Turner Creek Shale Member
 - Sheldon Limestone Member
 - Jones Point Shale Member
 - Curzon Limestone Member
 - Iowa Point Shale Member
 - Hartford Limestone Member
- Calhoun Formation
- Deer Creek Formation
 - Ervine Creek Limestone Member
 - Larsh-Burroak Shale Member
 - Rock Bluff Limestone Member
 - Oskaloosa Shale Member
 - Ozawkie Limestone Member

Tecumseh Formation
Lecompton Formation
 Avoca Limestone Member
 King Hill Shale Member
 Beil Limestone Member
 Queen Hill Shale Member
 Big Springs Limestone Member
 Doniphan Shale Member
 Spring Branch Limestone Member

Kanwaka Formation
 Stull Shale Member
 Clay Creek Limestone Member
 Jackson Park Shale Member

Oread Formation
 Kereford Limestone Member
 Heumader Shale Member
 Plattsmouth Limestone Member
 Heebner Shale Member
 Leavenworth Limestone Member
 Snyderville Shale Member
 Toronto Limestone Member

Douglas Group

 Lawrence Formation
 Amazonia Limestone Member
 Stranger Formation
 Haskell Limestone Member
 Vinland Shale Member
 Westphalia Limestone Member
 Tonganoxie Sandstone Member

Missourian Series

Pedee Group

 Iatan Formation
 Weston Formation

Lansing Group

 Stanton Formation
 South Bend Limestone Member
 Rock Lake Shale Member
 Stoner Limestone Member
 Eudora Shale Member
 Captain Creek Limestone Member

 Vilas Formation
 Plattsburg Formation
 Spring Hill Limestone Member
 Hickory Creek Shale Member
 Merriam Limestone Member

Kansas City Group

 Bonner Springs Formation
 Wyandotte Formation
 Farley Limestone Member
 Island Creek Shale Member
 Argentine Limestone Member
 Quindaro Shale Member

- Frisbie Limestone Member
- Lane Formation
- Iola Formation
 - Raytown Limestone Member
 - Muncie Creek Shale Member
 - Paola Limestone Member
- Chanute Formation
- Drum Formation
 - Cement City Limestone Member
- Cherryvale Formation
 - Quivira Shale Member
 - Westerville Limestone Member
 - Wea Shale Member
 - Block Limestone Member
 - Fontana Shale Member
- Dennis Formation
 - Winterset Limestone Member
 - Stark Shale Member
 - Canville Limestone Member
- Galesburg Formation
- Swope Formation
 - Bethany Falls Limestone Member
 - Hushpuckney Shale Member
 - Middle Creek Limestone Member
- Ladore Formation
- Hertha Formation
 - Sniabar Limestone Member
 - Mound City Shale Member
 - Critzer Limestone Member
- Pleasanton Group**
 - Warrensburg Sandstone Member
 - Exline Limestone Member
 - Hepler Sandstone Member

Desmoinesian Series

- Marmaton Group**
- Appanoose Subgroup***
 - Holdenville Formation
 - Lenapah Formation
 - Sni Mills Limestone Member
 - Perry Farm Shale Member
 - Norfleet Limestone Member
 - Nowata Formation
 - Walter Johnson Sandstone Member
 - Altamont Formation
 - Worland Limestone Member
 - Lake Neosho Shale Member
 - Amoret Limestone Member
 - Bandera Formation
 - Bandera Quarry Sandstone Member
 - Pawnee Formation
 - Coal City Limestone Member
 - Mine Creek Shale Member
 - Myrick Station Limestone Member
 - Anna Shale Member

Labette Formation
Englevale Sandstone Member
Lexington Coal Bed

Fort Scott Subgroup

Higginsville Formation
Little Osage Formation
Flint Hill Sandstone Member
Houx Limestone Member
Blackjack Creek Formation
Excello Formation

Cherokee Group

Cabaniss Subgroup

Mulky Formation
Breezy Hill Limestone Member
Lagonda Formation
"Squirrel" Sandstone Member
Bevier Formation
Verdigris Formation
Ardmore Limestone Member
Croweburg Formation
Fleming Formation
Robinson Branch Formation
Mineral Formation
Scammon Formation
Chelsea Sandstone Member
Tiawah Limestone Member
Tebo Formation
Weir Formation

Krebs Subgroup

Seville Formation
Bluejacket Formation
Drywood Formation
Rowe Formation
Warner Formation
Hartshorne Formation

Atokan Series

Cheltenham Formation
Riverton Formation
Burgner Formation
McClouth Formation

Morrowan Series

"Prairie Grove equivalent"

MISSISSIPPIAN SYSTEM

Chesterian Series

Southwestern Missouri

Fayetteville Shale
Wedington Sandstone Member
Batesville Sandstone

Southeastern Missouri

Vienna Limestone
Tar Springs Sandstone
Glen Dean Formation
Hardinsburg Limestone
Golconda Formation
Haney Limestone Member
Fraileys Shale Member
Beech Creek Limestone Member
Cypress Formation
Paint Creek Formation
Ridenhower Limestone Member
Bethel Member
Downeys Bluff Limestone Member
Yankeetown Sandstone
Renault Formation
Aux Vases Sandstone
Ste. Genevieve Limestone

Hindsville Limestone
(Cartersville Formation)

Meramecian Series

Southwestern Missouri

St. Louis Limestone
Salem Formation
Warsaw Formation

East-central Missouri

St. Louis Limestone
Salem Formation
Warsaw Formation

Osagean Series

Southwestern Missouri

Keokuk Limestone
Short Creek Oolite Member
Burlington Limestone
Elsey Formation
Reeds Spring Formation
Pierson Limestone

East-central Missouri

Keokuk Limestone
Peerless Park Member
Burlington Limestone

Fern Glen Formation
Meppen Limestone Member

Kinderhookian Series

Southwestern Missouri

Chouteau Group

Northview Formation
Baird Mountain Limestone Member
Sedalia Formation
Compton Limestone

Bachelor Formation

Northeastern Missouri

Chouteau Group

"Chouteau Limestone"

Hannibal Shale
Horton Creek Limestone

DEVONIAN SYSTEM

Upper Devonian Series

Northeastern Missouri

Louisiana Limestone

Saverton Shale
Grassy Creek Shale
Turpin Sandstone

Central Missouri Sulphur Springs Group

Bushberg Sandstone
Glen Park Limestone
Unnamed lower shale
Holts Summit Sandstone
Snyder Creek Shale

Southwestern Missouri

Chattanooga Shale
Sylamore Sandstone

Middle Devonian Series

Southeastern Missouri

St. Laurent Limestone
Beauvais Sandstone
Grand Tower Limestone

Central Missouri

Cedar Valley Limestone
(Cooper facies)
(Mineola facies)
(Callaway facies)
(Hoing sandstone)
Wapsipinicon Formation

Southwestern Missouri

Fortune Formation

Lower Devonian Series

Southeastern Missouri

Grassy Knob Chert
Little Saline Limestone
Clear Creek Chert
Bailey Formation

SILURIAN SYSTEM

Northeastern Missouri

"Joilet Limestone"
Bowling Green Dolomite
Bryant Knob Formation
Kissenger Limestone Member

Southeastern Missouri

Bainbridge Formation
Moccasin Springs Member
St. Clair Limestone Member
Seventy-Six Shale Member
Sexton Creek Limestone

ORDOVICIAN SYSTEM

Cincinnatian Series (Upper Ordovician)

Northeastern Missouri

Edgewood Group

Noix Limestone
Cyrene Limestone
Maquoketa Shale

Southeastern Missouri

Leemon Formation

Maquoketa Group

Girardeau Limestone
Orchard Creek Shale
Thebes Sandstone
Cape La Croix Shale
Cape Limestone

Mohawkian Series (Middle Ordovician)

Northeastern to southeastern Missouri

Kimmswick Limestone

Decorah Group

Guttenberg Limestone
Kings Lake Limestone
Spechts Ferry Formation
Glencoe Shale Member
Millbrig K-Bentonite bed
Castlewood Limestone Member
Deicke K-Bentonite bed

Plattin Group (Plattin Limestone)

Macy Limestone
Zell Member
Hook Member
Hager Limestone
Victory Member
Hely Member
Glaize Creek Member
Beckett Limestone
Bloomsdale Limestone
Establishment Shale Member
Brickeys Member
Blomeyer Member (southeastern Missouri only)
"Pecatonica Formation" (southeastern Missouri only)
Medusa Limestone Member
Joachim Dolomite
 "upper Joachim Dolomite"
 Metz Member
 Matson Member
 "middle Joachim Dolomite"
 Defiance Member
 Boles Member
 "lower Joachim Dolomite"

Augusta Member
Abernathy Member (southeastern Missouri only)
Dutchtown Formation (southeastern Missouri only)
St. Peter Sandstone
Starved Rock Member
Tonti Member
Kress Member

Whiterockian Series

Everton Formation

Canadian Series (Lower Ordovician)

Smithville Formation
Powell Dolomite
Cotter Dolomite
"Swan Creek sandstone"
Jefferson City Dolomite
"Quarry Ledge"
Roubidoux Formation
Gasconade Dolomite
"Van Buren dolomite"
Gunter Sandstone Member

CAMBRIAN SYSTEM - Croixian Series

Eminence Dolomite
Potosi Dolomite
Derby-Doe Run Dolomite
Davis Formation
Bonneville Formation
Whetstone Creek Member
Sullivan Siltstone Member
"Bonneville - Lamotte transition beds"
Lamotte Sandstone
(Reagan Sandstone)

PRECAMBRIAN ROCK UNITS**** (St. Francois Mountains)

St. Francois Mountains Volcanic Supergroup

St. Francois Mountains Intrusive Suite

	Hypabyssal Rocks***	Plutonic Rocks***
Taum Sauk Group*		
Johnson Shut-Ins Rhyolite		Graniteville Granite
Taum Sauk Rhyolite		
Royal Gorge Rhyolite		
Bell Mountain Rhyolite	Buford Granite Porphyry	
Wildcat Mountain Rhyolite	Munger Granite Porphyry	
Russell Mountain Rhyolite	Carver Creek Granite Porphyry	
Lindsey Mountain Rhyolite		
Ironton Rhyolite		
Buck Mountain Shut-Ins Formation		
Pond Ridge Rhyolite		
Cedar Bluff Rhyolite		
Shepard Mountain Rhyolite		
Butler Hill Group**		
Pilot Knob Felsite		Silvermine-Knoblick Granites
Grassy Mountain Ignimbrite	Brown Mountain Rhyolite Porphyry	Slabtown-Stono Granites
Lake Killarney Formation		Butler Hill-Breadtray Granites

* Volcanic units defined by Berry (1976).

** Volcanic units defined by Sides (1976).

*** Formal names from Tolman and Robertson (1969).

**** Chart from Kisvarsanyi (1989).

REFERENCES

The following reports are the most current available to serve as standards for the stratigraphic succession in Missouri.

- Berry, A.W.**, 1976, Proposed stratigraphic column for Precambrian volcanic rocks, western St. Francois Mountains, Missouri, *in* Kisvarsanyi, E.B. (editor), *Studies in Precambrian geology with a guide to selected parts of the St. Francois Mountains, Missouri* (Contribution to Precambrian Geology No. 6): Missouri Department of Natural Resources, Geological Survey, Report of Investigations 61, p. 81-90.
- Howe, W.B., (compiler), and Koenig, J.W. (editor)**, 1961, The stratigraphic succession in Missouri: Missouri Geological Survey and Water Resources, 2nd series, v. 40, 185 p.
- Kisvarsanyi, E.B.**, 1989, Precambrian rocks and ore deposits in the St. Francois Mountains, southeast Missouri – a Middle Proterozoic terrane of granite ring complexes and associated rhyolites, *in* Baxter, J.W., Kisvarsanyi, E.B., and Hagni, R.D., leaders, *Precambrian and Paleozoic geology and ore deposits in the Midcontinent region: Field Trip Guidebook T147*, 28th International Geological Congress, American Geophysical Union, Washington, D.C., p. 37-50.
- Sides J.R.**, 1976, Stratigraphy of volcanic rocks in the Lake Killarney Quadrangle, Iron and Madison Counties, Missouri, *in* Kisvarsanyi, E.B. (editor), *Studies in Precambrian geology with a guide to selected parts of the St. Francois Mountains, Missouri* (Contribution to Precambrian Geology No. 6): Missouri Department of Natural Resources, Geological Survey, Report of Investigations 61, p. 105-113.
- Thompson, T.L.**, 1986, Paleozoic succession in Missouri, Part 4 – Mississippian System: Missouri Department of Natural Resources, Division of Geology and Land Survey, Report of Investigations 70, Pt. 4, 182 p.
- _____, 1991, Paleozoic succession in Missouri, Pt. 2 – Ordovician System: Missouri Department of Natural Resources, Division of Geology and Land Survey, Report of Investigations 70, Pt. 2, 282 p.
- _____, 1993 (in press), Paleozoic succession in Missouri, Pt. 3 – Silurian and Devonian Systems: Missouri Department of Natural Resources, Division of Geology and Land Survey, Report of Investigations 70, Pt. 3.
- Tolman, C., and Robertson, F.**, 1969, Exposed Precambrian rocks in southeast Missouri (Contribution to Precambrian Geology No. 1): Missouri Geological Survey and Water Resources, Report of Investigations 44, 68 p.

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